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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/581,890	08/28/2000	Oliver Brustle	V0S-012	7106

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Shann Kerner
Hale & Dorr
60 State Street
Boston, MA 02109

EXAMINER
FALK, ANNE MARIE

ART UNIT	PAPER NUMBER
1632	

DATE MAILED: 02/26/2003

17

Please find below and/or attached an Office communication concerning this application or proceeding.

File

Office Action Summary	Application No.	Applicant(s)	
	09/581,890	BRUSTLE, OLIVER	
	Examiner	Art Unit	
	Anne-Marie Falk, Ph.D.	1632	

-- The MAILING DATE of this communication appears on the cover sh et with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 December 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-15 and 47-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-15 and 47-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *14* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

The response filed December 6, 2002 (Paper No. 13) has been entered. Claims 2-15 and 46 have been amended. Claims 1, 16-30, and 39-45 have been cancelled. Claims 47-51 have been newly added.

Accordingly, Claims 2-15 and 46-51 are pending in the instant application.

The following rejections are reiterated or newly applied and constitute the complete set of rejections being applied to the instant application. Rejections and objections not reiterated from the previous office action are hereby withdrawn.

Claim Rejections - 35 USC § 112

Claims 2-15 and 46-51 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a composition comprising up to 66% neural precursor cells derived from ES cells, does not reasonably provide enablement for a composition comprising from 85% to 100% isolated neuronal precursor cells as recited in the claims. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The claims are directed to a non-tumorigenic cell composition derived from embryonic stem cells, the composition comprising from 85% to 100% isolated neuronal precursor cells, which have the ability to differentiate to neuronal or glial cells, and from 0% to 15% primitive embryonic and non-neural cells. The claims newly recite the limitation that the composition comprises "from 85% to 100% isolated neuronal precursor cells."

The specification fails to provide an enabling disclosure for the claimed cell composition comprising "from 85% to 100% isolated neuronal precursor cells" because the specification only teaches how to produce cell compositions comprising around 66% neural precursor cells derived from ES cells.

The instant specification discloses at page 24, lines 31-34 that immunofluorescent analysis of neural spheres demonstrated that 66% of the cells were nestin-positive neural precursor cells. Although the instant specification states that the methodology described permits the production of neural precursor cell compositions with a purity far exceeding 85% and further that the methodology permits the generation of neural precursor cells in a purity up to 100% (page 18, lines 25-32), there is no demonstration of cell compositions exceeding 66% neural precursor cells. The prior art discloses a methodology for obtaining compositions comprising 95% neural precursor cells (Okabe et al., 1996). These cell compositions were produced from ES cells by *in vitro* culture methods. Neither the prior art nor the instant specification teaches how to obtain a composition comprising 100% neural precursor cells.

In view of the limited guidance provided in the specification for obtaining cell compositions with the requisite percentage of precursor cells as recited in the claims, the lack of applicable working examples, the quantity of experimentation necessary to obtain the claimed cell compositions, and the unpredictability for producing cell compositions of a purity as high as 100%, undue experimentation would have been required for one skilled in the art to make and use the claimed cell compositions.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-15 and 46-51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2-15 and 46-51 are indefinite in their recitation of "neuronal precursor cells, which have the ability to differentiate to neuronal or glial cells" because the use of the term "neuronal" implies that the cells have the ability to differentiate into neurons but not into glial cells. Furthermore, while the

preamble refers to "neuronal precursor cells," the body of the claim only refers to "neural precursor cells." Consistent use of the term "neural precursor cells" would be remedial.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 2-15 and 46-51 are rejected under 35 U.S.C. 102(b) as being anticipated by Okabe et al. (1996).

The claims are directed to a non-tumorigenic cell composition derived from embryonic stem cells, the composition comprising from 85% to 100% isolated neuronal precursor cells, which have the ability to differentiate to neuronal or glial cells, and from 0% to 15% primitive embryonic and non-neural cells. The claims newly recite the limitation that the composition comprises "from 85% to 100% isolated neuronal precursor cells."

Okabe et al. (1996) disclose neuronal precursor cells derived from embryonic stem cells. The reference further discloses that 95% of the cells in the culture stained with the neuroepithelial precursor cell marker nestin (page 97, column 2, last sentence). Thus, the compositions disclosed by Okabe et al. meet the new limitation now recited in the claims. Furthermore, the reference discloses that the precursor cells differentiate into both neurons and glia (see abstract).

Claims 2-15 and 46-51 are product-by-process claims. Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. The patentability of a product does not depend on its method of production. See M.P.E.P. 2113.

The cell compositions disclosed by Okabe et al. are indistinct from those instantly claimed.

Thus, the claimed compositions are disclosed in the prior art.

Conclusion

No claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne-Marie Falk whose telephone number is (703) 306-9155. The examiner can normally be reached Monday through Thursday and alternate Fridays from 10:00 AM to 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Reynolds, can be reached on (703) 305-4051. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the patent analyst, William Phillips, whose telephone number is (703) 305-3482.

Anne-Marie Falk, Ph.D.

Anne-Marie Falk

ANNE-MARIE FALK, PH.D
PRIMARY EXAMINER